

Claims:

1. A method for transferring information that is not urgent from a server originally holding the information to an information-request source through a network including a plurality of routers, comprising the steps of:

determining at least one relay server located on a path between the server and the information-request source, wherein the path is set by at least one router in the network; and

transferring the information through the path such that each relay server receives the information from upstream, temporarily stores and transmits the same to downstream.

2. The method according to claim 1, wherein the information-request source is a cache server for storing a copy of information that is likely to be accessed by a terminal.

3. The method according to claim 2, wherein transfer of information from the server to the cache server is caused by the cache server performing at least one of an automatic cache updating operation, a link prefetching operation and a cache server cooperating operation.

4. A method for transferring information that is likely

to be accessed by a terminal from a server originally holding the information to a cache server through a network including a plurality of routers, wherein the information is stored in the cache server, comprising the steps of:

5 providing a plurality of relay servers each having a time slot previously assigned thereto;

 determining at least one relay server located on a path between the server and the cache server, wherein the path is set by at least one router in the network;

10 at each relay server,

 when a current time falls into the time slot assigned thereto, sending a request for transfer of the information to an upstream-located server holding the information;

 when receiving the information from the
15 upstream-located server through the path in response to the request, storing the information; and

 when receiving a request for transfer of the information from a downstream-located server, transmitting the information stored to the downstream-located server through the
20 path.

5. The method according to claim 4, wherein the time slot assigned to each relay server is determined depending on where the relay server is installed, wherein the time slot is a time period during which small traffic is predicted in an area
25 where the relay server is installed.

6. A network system comprising:
a content-request source for requesting content
that is not urgent;
a server storing the content;
5 at least one relay server for relaying the content;
and
a plurality of routers,
wherein
the content-request source comprises:
10 a relay controller for notifying a relay server located
on a path set by at least one router between the server and the
content-request source, of identification of the content to be
obtained, and
the at least one relay server comprises:
15 a storage for storing the content; and
a controller controlling such that the content is received
from upstream, is temporarily stored in the storage, and is
transmitted to downstream.

7. The network system according to claim 6, wherein the
20 content-request source is a cache server for requesting content
that is likely to be accessed by a terminal, wherein when
requesting a latest version of the content that is likely to
be accessed by a terminal, the relay controller notifies the
relay server located on the path of the identification of the

content.

8. The network system according to claim 7, wherein the cache server comprises:

at least one of an automatic cache updating section,
5 a link prefetching section and a cache server cooperating section, which request the relay controller to obtain the latest version of the content that is likely to be accessed by a terminal.

9. A network system comprising:

10 a cache server for requesting content that is likely to be accessed by a terminal;

a server storing the content;

a plurality of relay servers, each of which relays the content; and

15 a plurality of routers,

wherein

the cache server comprises:

a relay timing memory for storing a time slot suitable for relay operation for each of the relay servers; and

20 a relay controller for notifying a relay server located on a path set by at least one router between the server and the cache server, of identification of the content to be obtained, in the time slot for the relay server, and

each of the relay servers comprises:

a storage for storing the content; and

a controller controlling such that

when receiving the identification of the content to be
obtained from the cache server, a request for transfer of the
5 content is sent to an upstream-located server holding the
content,

when receiving the content from the upstream-located
server through the path in response to the request, the content
is stored in the storage, and

10 when receiving a request for transfer of the content from
a downstream-located server, the content stored is transmitted
to the downstream-located server through the path.

10. The network system according to claim 9, wherein the
time slot for each of the relay servers is determined depending
15 on where the relay server is installed, wherein the time slot
is a time period during which small traffic is predicted in an
area where the relay server is installed.

11. A recording medium storing a first program for
instructing a content-request computer to request content that
20 is not urgent from a server computer storing the content through
a network and a second program for instructing a relay server
computer to relay the content, in machine-readable form,

the first program making the content-request
computer function as a relay controller for notifying a relay

server located on a path set by at least one router between the server computer and the content-request computer, of identification of the content to be obtained, and

the second program making the relay server computer function as a controller controlling such that the content is received from upstream, is temporarily stored in a storage, and is transmitted to downstream.

12. The recording medium according to claim 11, wherein the content-request computer is a cache server computer for requesting content that is likely to be accessed by a terminal, wherein when requesting a latest version of the content that is likely to be accessed by a terminal, the relay controller notifies the relay server computer located on the path of the identification of the content.

13. A recording medium storing a first program for instructing a cache server computer to request content that is likely to be accessed by a terminal from a server computer originally storing the content and a second program for instructing a relay server computer to relay the content, in machine-readable form,

the first program comprising the steps of:

storing time slots previously assigned to respective ones of a plurality of relay server computers in a network; and

determining at least one relay server computer located on a path between the server computer and the cache server computer, wherein the path is set by at least one router in the network, and

5 the second program comprising the steps of:

when a current time falls into the time slot assigned thereto, sending a request for transfer of the content to an upstream-located server computer holding the content;

when receiving the content from the upstream-located server through the path in response to the request, storing the content in a storage; and

10 when receiving a request for transfer of the content from a downstream-located server, transmitting the content stored to the downstream-located server through the path.

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